

Remarks/Arguments

Claims 7-10 have been rejected under 35 U.S.C. § 112, second paragraph as being indefinite for failing to particularly point out and distinctly claim the subject matter which the applicants regard as the invention. Applicants respectfully disagree.

With respect to claims 7 and 8, the Examiner rejected the claims as being unclear because "the organic materials include an oxidizer" in claim 7, while the oxidizers in claim 8 are not organic. Applicants have amended the claim 5 to overcome the Examiner's concern. Consequently, applicants request withdrawal of this rejection.

With respect to claim 10, the Examiner has rejected the claim because the term "organic material" is vague since it was not clear whether the claim referenced the organic material volatilized during the screenbake step or the remaining organic material volatilized during the frit curing step. The applicants have amended the claim to clearly describe the organic material. Consequently, the applicants request withdrawal of the rejection.

Claims 1, 3, and 11 have been rejected as being anticipated under 35 U.S.C. § 102(b) as being anticipated by Giancaterini, U.S. Patent No. 4,590,092. The Examiner alleges that Giancaterini teaches a method of manufacturing a luminescent screen assembly for a CRT comprising the steps of: screening an inner surface of a faceplate panel thereby providing on the inner surface a screened surface having phosphor deposits and organic materials, depositing a metal layer on the organic materials, and removing the organic materials from the inner surface of the faceplate panel by volatilizing the organic materials. Applicants respectfully disagree.

First, the reference fails to disclose the removal of the organic material by volatilization through heating such that volume rates of gaseous decomposition products from each of the components of the organic material is less than the diffusion rates of

5.10.04/1266186.1 (PU010264)

the respective gaseous decomposition products through metal layer. As stated on pages 7 and 8 of the specification, "understanding the thermal decomposition temperature of the major components of the materials used for the EPS process is of great importance....In particular, the thermal decomposition temperature of the OC layer, the OPC layer, the filming layer and the overspray layer determine the amount of gaseous organic constituents produced." In addition, there is not a teaching that the volume rate of the gaseous decomposition products produced is controlled by adjusting rates of temperature increase. Therefore, Giancaterini fails to anticipate claims 1, 3 and 11.

Claims 1, 3, and 11 have also been rejected under 35 U.S.C. § 103 as being unpatentable over Giancaterini. In setting forth his reasons, the Examiner admits, that Giancaterini does not explicitly state that the volume rate of decomposition products is less than the diffusion rate through metals. Nevertheless, the Examiner proceeds to reason that because the patent mentions blister formation, it would have been obvious to one of ordinary skill in the art to have optimized the rate of decomposition in order to achieve a desired blend of productivity and blister formation. Applicants respectfully assert this logic is incorrect. Although Giancaterini mentions blistering, his remedy is to spray a crystal forming solution, whereby crystals cause a large number of holes in the aluminum layers, thus providing for better gas discharge. He, however, does not recognize or appreciate the importance of the constituents of the material and the particular thermal decomposition temperature of the constituents in preventing blister formation. Nor does he control blistering by heating at various temperatures to ensure that the volume rate of the gaseous decomposition of products from each component is less than the diffusion rate of the respective products. For these reasons and those set forth above, Giancaterini fails to render obvious the claimed invention.

Claim 2 has been rejected under 35 U.S.C. § 103 as being unpatentable over Giancaterini as applied to claim 1 and further in view of Saulnier, Jr. and Harper. The Examiner admits that Giancaterini does not explicitly state that the volume rate of decomposition products is less than the diffusion rate through metals. Furthermore, Giancaterini does not teach that the organic materials are present in a coating weight of at least 1.0 mg/cm^2 . It was then reasoned in the Office Action that Saulnier, Jr. teaches a phosphor layer that contains up to 0.47 mg/cm^2 . Further it was alleged that Harper teaches the use of a organic precoating layer for the enhancement of the adhesion of the phosphor layer. Then, the Office Action concludes taking the references as a whole, it would have been obvious to one of ordinary skill in the art to have used a precoating layer of up to 0.8 mg/cm^2 and up to 0.47 mg/cm^2 of organic material. Applicants respectfully disagree with the assert in the Office Action that the subject matter as a whole would have been obvious to one of ordinary skill in the art.

First, there is absolutely no motivation in the references themselves to combine them in the manner suggested in the Office Action. This is improper use of hindsight and lumps the teachings of two additional references onto the base reference in an additive manner to arrive at the conclusion that the prior art teaches a coating of at least 1.0 mg/cm^2 . Third, the prior art fails to suggest the desirability of the combination. Giancaterini received his patent in 1986. Saulier Jr. was granted a patent in 1962 and Harper in 1984. The teaching of Saulier, Jr. and Harper were around when Giancaterini made his invention. There is no teaching, direct or indirect, in any of these patents to construe them in the way suggested by the Examiner. Even if combined, the secondary references do not overcome the deficiency of the primary reference. Not one of the secondary references teaches heating the organic material such that the volume rates of the gaseous decomposition products from each of the components is less than the

diffusion rates of the respective gaseous decomposition products through the metal layer. Applicants respectfully assert that the conclusion in the Office Action is improper. Therefore, the applicants request that the rejection be withdrawn.

Claims 3-6 and 11 have been rejected under 35 U.S.C. §103 as being unpatentable over Giancaterini as applied to claims 1 and 11 and further in view of Patel. The Examiner in this rejection also admits the Giancaterini fails to teach the use of more than one temperature rate or screen bake and frit curing steps. However, this patches the deficiency with the addition of Patel. According to the Examiner, Patel teaches that different heating rates may be used during the screen bake and frit sealing cycles. Applicants disagree.

First, there is no reason to combine the two references, nor is there any motivation in the references themselves to do so. Second, neither the combination of references nor the individual references teach volatilizing the organic materials through heat such that the volume rates of the gaseous decomposition products is less than the diffusion rate of the respective decomposition products through the metal layer. Third, the two references combined fail to teach the explicit steps set forth in claim 11, wherein the luminescent screen is exposed to a first, second and third temperature, whereby the first component is volatilized during the second temperature and the second component volatilizes during the third temperature. Consequently, the applicants request the withdrawal of the rejection.

Claims 6-10 have been rejected under 35 U.S.C. § 103 as being unpatentable over Giancaterini in view of Patel and in further view of Skinner (US 4,154,494). The Examiner admits that the combination of Giancaterini in view of Patel fails to teach an oxidizer on the screen. Rather it was reasoned that Skinner teaches the use of an oxidizing agent can be included on the inside of the funnel. Based upon this, he reasons

that it would have been obvious to one of ordinary skill in the art to include the oxidizing agent in the method of Giancaterini and Patel in order to minimize reduction during frit curing.

Applicants respectfully disagree.

First, there is no motivation to combine the teachings as suggested. Skinner clearly teaches the addition of the oxidizing agent only to the funnel coating and not anywhere else in the CRT or during the method of forming the CRT. As such, this is an improper use of Skinner and hindsight to arrive at the conclusion. Furthermore, even the teaching of Skinner added to Giancaterini in view of Patel fails to render obvious applicant's invention. The combination of references fail to teach heating to a temperature to diffuse a portion of the organic materials through the metal layer during the screenbake step and subsequently heating the assembly to a temperature to diffuse the remaining organic materials through the metal layer during the frit curing step, wherein the diffusion rate of the organic materials through the metal layer is greater than the volume rate of the gaseous decomposition products formed during the heating step. Finally, these references fail to teach the rate of volatilization during various screenbake and frit curing steps as required by claims 9 and 10. In addition, the references fail to teach a provision of an oxygen source during the frit cure step as required by claim 6. Most importantly, the combination of references also fail to teach heating the assembly to diffuse a portion of the organic materials through the metal layer during a screenbake step, subsequently heating the assembly to a temperature to diffuse remaining organic materials during the frit curing step wherein the diffusion rates for the organic materials through the metal layer is greater than the volume rate of gaseous decomposition products of the organic materials formed during heating steps. Consequently, the applicants request withdrawal of the rejection.

5.10.04/1266186.1 (PU010264)

- 11 -

Claims 12-16 have been rejected under 35 U.S.C. § 103 as being unpatentable over Giancat rini in view of Patel and further in view of Harper and Wagland. Applicants assert that this is improper use of hindsight. Here the Examiner admits that neither Patel nor Giancaterini teach the 2nd through 5th temperature ranges of applicants claim 12. However, it was reasoned that because Wagland teaches that PMMA and PHEM are operative decomposable materials for smoothing a phosphor layer prior to aluminizing, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate PMMA and PHEM into the coating of Giancaterini and Patel with a reasonable expectation of success. As such, Applicants request reconsideration.

Since Wagland does not disclose all materials in applicants' claims, the Examiner turns to Harper. The Office Action alleges that it would have been obvious to one of ordinary skill in the art to include polystyrene as Harper teaches that an organic precoating may be used to enhance the adherence of subsequently deposited phosphors as set forth in col. 2, lines 48-68. First, applicants respectfully point out that col. 2, lines 48-68 do not teach the use of polystyrene.

Second, there is no motivation to combine the references other than through hindsight. Third, there is no teaching in any of these references, or any combination of the references of using various temperatures to decompose sequentially various components of the organic material.

For all the reasons set forth above, Applicants submit not one reference anticipates the invention as claimed or renders obvious the claimed invention. Therefore, applicants respectfully request a withdrawal of the pending rejection and an indication of the allowability of the claims. If the Examiner has any question that would

facilitat the resolution of the issues, he is respectfully requested to contact the undersigned at 717-295-6207

Please charge any additional fees associated with this application to Deposit Order Account No. 07-0832.

Respectfully submitted,

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